

*AMENDMENTS TO THE CLAIMS*

This listing of claims replaces all prior versions, and listings, of claims in the application.

1. (Currently Amended) A method for inducing an immunological response against a cell expressing a breast cancer associated antigen in a human, ~~said wherein the method comprises: comprising the steps of:~~

(a) selecting a human having breast cancer or at risk for developing such a breast cancer tumor,

(b) administering to the individual a first poxvirus vector containing one or more DNA segments that encode (i) mucin (MUC) or an antigenic portion thereof or modified version thereof and (ii) carcinoembryonic antigen (CEA) or an antigenic portion thereof or modified version thereof, ~~a first gene, or antigenic portion thereof, that encodes a breast cancer associated antigen,~~ and

(c) at regular intervals thereafter administering at least a second poxvirus vector containing one or more DNA segments that encode (i) MUC or antigenic portion thereof or modified version thereof and (ii) CEA or an antigenic portion thereof or modified version thereof, ~~a gene encoding a breast cancer associated antigen or antigenic portion thereof, wherein the second vector is from the same or a different source as the first vector.~~

such that an immunological response against the cell expressing the breast cancer associated antigen is induced in the individual.

2. (Previously Presented) The method of claim 1, further comprising administering at least one co-stimulatory molecule.

3. (Previously Presented) The method of claim 1, further comprising administering granulocyte-macrophage colony stimulating factor (GM-CSF).

4. (Currently Amended) The method of claim 2, wherein the co-stimulatory molecule is administered as a gene contained within the first, second, or both vectors. ~~same vector as the vector containing gene encoding the breast cancer associated antigen.~~

5. (Currently Amended) The method of claim ~~2~~, 4, wherein the vector contains at least B7.1, LFA-3 and ICAM-1 as co-stimulatory genes.

6. (Canceled)

7. (Currently Amended) The method according to claim ~~7~~, 1, wherein ~~said pox virus vector is~~ the first and second poxvirus vectors are selected from the group consisting of: an orthopox virus vector; avipox virus vector; a suipox virus vector; a capripox virus vector; a leporipox virus vector; and an iridovirus vector, wherein the first and second poxvirus vectors can be the same or different poxvirus vectors.

8. (Currently Amended) The method according to claim ~~6~~, 1, wherein at least one of ~~said pox virus vector~~ the poxvirus vectors is a replication impaired or non-replicating poxvirus vector.

9. (Original) The method according to claim 7, wherein said first poxvirus vector is an orthopox vector.

10. (Original) The method according to claim 9, wherein said orthopox virus vector is Wyeth vaccinia, MVA or NYVAC.

11. (Canceled)

12. (Currently Amended) The method of claim ~~11~~, 1, wherein the mucin is MUC-1.

13. (Currently Amended) The method of claim ~~11~~, 1, wherein the modified version thereof is a wobbled MUC and contains five to fifteen tandem repeats.

14.-15. (Canceled)

16. (Original) The method of claim ~~15~~, 1, wherein the mucin is a wobbled MUC-1 or a wobbled mini-MUC-1 having six tandem repeats.

17. (Currently Amended) The method of claim 11, wherein the first poxvirus vector is an orthopox vector, and the second poxvirus vector is an avipox vector. ~~one to three administrations at set intervals are made by an orthopox vector containing the at least one~~

~~breast cancer associated antigen or antigenic portion thereof and multiple administrations at set intervals are made by the second poxvirus vector. an avipox vector containing the at least one breast cancer associated antigen or antigenic portion thereof.~~

18. (Original) The method of claim 17, wherein the orthopox vector is vaccinia.

19. (Original) The method of claim 18, wherein the vaccinia is vaccinia Wyeth or an attenuated vaccinia.

20. (Original) The method of claim 19, wherein the attenuated vaccinia is MVA or NYVAC.

21. (Currently Amended) The method of claim 17, wherein the orthopox vector is administered in one to three administrations at set intervals and before the avipox vector is administered in multiple administrations at set intervals.

22. (Original) The method of claim 21, wherein the set interval is 20 days to 90 days.

23.-39. (Canceled)

40. (Previously Presented) ~~A~~ The method of claim 1, wherein the one or more DNA segments comprise for inducing an immunological response against a cell expressing a breast cancer associated antigen in an individual, comprising administering a therapeutically effective amount of one or more of SEQ ID NO: 1, SEQ ID NO: 2, and SEQ ID NO: 3, or encode SEQ ID NO: 2 and SEQ ID NO: 4, or a fragment or variant thereof.

41.-43. (Canceled)